CHAPTER-1 SEXUAL REPRODUCTION IN FLOWERING PLANTS
MULTIPLE CHOICE QUESTIONS (1 MARK)

1. Total number of meiotic divisions required for forming 100 zygotes/ 100 grains of wheat
(a) 125 (b) 100 (c) 50 (d) 75
2. Pollination occurs in
(a) Angiosperms and Pteridophytes
(b) Angiosperms and Gymnosperms
(c) Bryophytes and Angiosperms
(d) Fungi and Angiosperms
3. The female gametophyte of a typical dicot at the time of fertilisation is
(a) 8 – celled
(b) 7 – celled
(c) 6 – celled
(d) 5 – celled
4. Both chasmogamous and cleistogamous flowers are present in
(a) Helianthus
(b) Commelina
(c) Rosa
(d) Gossypium
5. Feathery stigma occurs in
(a) pea
(b) wheat
(c) Datura
(d) Caesalpinia
6. In maize, 20 chromosomes are present in the cell of shoot apex. The number of chromosomes in pollen grain, nucellus, polar nucleus and megaspore will be:
(a) 10, 20, 10, 20(b) 20, 10, 10, 20
(c) 10, 20, 10, 10
(d) 20, 10, 20, 20
7. Autogamy can occur in a chasmogamous flower if
(a) pollen matures before maturity of ovule
(b) ovules mature before maturity of pollen
(c) both pollen and ovules mature simultaneously
(d) both anther and stigma are of equal lengths.
8. Anemophily type of pollination is found in
(a) Salvia (b) Bottle brush (c) Vallisneria (d) Coconut
9. In angiosperms, male gametes are formed by the division of
(a) microspore mother cell
(b) microspore
(c) generative cell
(d) vegetative cell
10. Starting from the innermost part, the correct sequence of parts in an ovule are
(a) egg, nucellus, embryo sac, integument
(b) egg, embryo sac, nucellus, integument
(c) embryo sac, nucellus, integument, egg
(d) egg, integument, embryo sac, nucellus

11. Even in absence of pollinating agents seed-setting is assured in
(a) Commelina
(b) Zostera
(c) Salvia
(d) Fig
12. Persistent nucellus is called as _____ and is found in _____.
(a) perisperm, black pepper
(b) perisperm, groundnut
(c) endosperm, black pepper
(d) endosperm groundnut
13. Identify the wrong statement regarding post-fertilisation development.
(a) The ovary wall develops into pericarp.
(b) The outer integument of ovule develops into tegmen.
(c) The fusion nucleus (triple nucleus) develops into endosperm.
(d) The ovule develops into seed.
14. The stamens represent
(a) microsporangia
(b) male gametophyte
(c) male gametes
(d) microsporophylls15. The cells of endosperm have 24 chromosomes. What will be the number of
chromosomes in the gametes ?
(a) 8
(b) 16
(c) 23
(d) 32

ASSERTION REASON QUESTIONS (1 MARK)

16. Assertion: If the female parent produces unisexual flowers, there is no need for emasculation.
Reason: Emasculated flowers are bagged to prevent contamination by undesired pollen.
17. Assertion: Apple is an example of false fruit.
Reason: Thalamus contributes to the formation of pseudocarpic fruits.
18. Assertion: A typical anther of flower is bilobed.
Reason: Each lobe of the anther is dithecous.
19. Assertion: In Autogamy, pollination is achieved within the same flower.
Reason: Autogamy induces cross pollination in flowering plants.
20. Assertion: Papaver has multicarpellary and syncarpous type of pistil.
Reason: Michelia possess multicarpellary and apocarpous type of pistil.

VERY SHORT ANSWER QUESTIONS (2 MARKS)

21. Why is the process of fertilization in a flowering plant referred to as double fertilization?
22. The flower of Brinjal is referred to as chasmogamous while that of Bean is cleistogamous. How are they different from each other.
23. Name the cell from which the endosperm of Coconut develops. Give the characteristic

features of endosperm of coconut.
24. Draw a vertical section of a Maize grain and label the following:
(i) pericarp (ii) scutellum (iii) coleoptile (iv) radicle
25. Differentiate between perisperm and endosperm giving one example of each.

SHORT ANSWER QUESTIONS (3 MARKS)

26. How does the floral pattern of Mediterranean orchid, Ophrys, guarantee cross pollination?
27. Draw a longitudinal section of a post pollinated pistil showing the entry of pollen tube into mature embryo sac. Label filiform apparatus, chalazal end, hilum, antipodals, male gametes and secondary nucleus.
28. Where does triple fusion take place in a flowering plant. Why is it so called? Mention its significance.
29. (a) Mention any four strategies adopted by flowering plants to prevent self-pollination.
(b)How pollination takes place in Vallesneria?
30. Draw a diagram of a male gametophyte of an angiosperm. Label any four parts. Why is sporopollenin considered the most resistant organic material?
31. Differentiate between geitonogamy and xenogamy in plants. Which one between the two will lead to inbreeding depression and why?

CASE-BASED QUESTIONS (4 MARKS)

32. The pollen grains or microspores are the male reproductive bodies of a flower and are contained in the pollen sac or microsporangia. Each pollen grain consists of a single microscopic cell, possessing two coats : the exine and the intine. The exine of a pollen grain is made of chemically stable material.
(a) One of the most resistant biological material is present in the exine of pollen grain. Name that.
(b) Mention the role of large and small cell present in a mature pollen grain.
(c) What is germ pore. State the function of germ pore.
OR
(c) What is the key advantage to the plant for having strong pollen grain walls?
33. Hybrid varieties of several of our food crops are being extensively cultivated. Cultivation of hybrids has increased the crop production tremendously. But, the problem of hybrids is that the hybrid seeds have to be produced every year.
(a) What is polyembryony?
(b) Give two examples of very old yet viable seeds.
(c) Name and explain the mechanism by which seeds from hybrid plants are developed that are able to retain the desired hybrid characters in the progeny.
OR
(c) Seeds offer several advantages to angiosperms. Mention any four.

LONG ANSWER QUESTIONS (5 MARKS)

34. How does pollen mother cell develop into a mature pollen grain? Illustrate the stages with labelled diagrams.

35. (a) Why is the process of fertilization in angiosperms termed as double fertilization.Explain.
(b) Draw a diagram of an angiospermic embryo sac where fertilization is just completed. Label the following (i) Micropylar end of embryo sac (ii) Part that develops into an embryo (iii) Part that develops into an endosperm (iv) The degenerating cells at chalazal end.
(c) Draw a labelled diagram of globular embryonic stage of an angiosperm.
36. Give reasons why
(i) Most zygotes in angiosperms divide only after certain amount of endosperm is formed.
(ii) Groundnut seeds are exalbuminous and Castor seeds are albuminous.
(iii) Micropyle remains as a small pore in the seed coat of a seed.
(iv) Integuments of an ovule harden and the water content is highly reduced as the seed matures.
(v) Apple and Cashew are not called true fruits.
37. (a) Draw a diagram of an enlarged view of T.S. of one microsporangium of an angiosperm and label the following parts :
(i) Tapetum (ii) Middle layer (iii) Endothecium (iv) Microspore mother cells(b) Mention the characteristic features and functions of tapetum.
(c) Explain the following giving reasons:
(i) Pollen grains are well preserved as fossils.
(ii) Pollen tablets are in use by people these days.
38. (a) Explain the characteristic features of wind pollinated flowers. How are insect pollinated followers different from them?
(b) Explain the mutually rewarding relationship between Yucca plant and species of moth.
39. How does the megaspore mother cell develop into 7-celled, 8 –nucleate embryo sac in an angiosperm? Draw labelled diagram of a mature embryo sac.